

AMENDMENTS TO THE CLAIMS

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Please cancel claims 4-6, 14-15, and 18-21 without prejudice. Please amend claims 1-3, 7-13, and 16-17 as shown in the PENDING CLAIMS section below. Please add new claims 22-44 as shown in the PENDING CLAIMS section. The PENDING CLAIMS section presents a detailed listing of all claims that are, or were, in the application, using status identifiers.

PENDING CLAIMS

- Sub C1
1. (Currently Amended) A method for detecting the path to a first network device, said method comprising the steps of:
- receiving a data packet from a second network device, the data packet containing a hop count, a destination Ethernet address corresponding to the said first network device, and a source Ethernet address corresponding to the a second network device;
- decrementing the modifying said hop count by one to form a modified data packet; ~~and~~
- determining at least one port on a network device receiving the data packet, by examining the said destination Ethernet address ~~to identify one or more ports on a network device receiving said data packet to forward information to said destination~~ Ethernet address; and
- forwarding the said modified data packet through the at least one port said ports.
- B

2. (Currently Amended) The method in accordance with ~~of~~ claim 1, wherein the said
~~hop count is not modified~~ data packet is not forwarded if the said destination Ethernet
address is the same as the Ethernet address of the said network device receiving the said
data packet.

3. (Currently Amended) A method for detecting a ~~the~~ path to a first network device,
comprising ~~the steps of:~~
transmitting from a second network device, the a data packet containing a hop
count, a destination Ethernet address corresponding to the said first network device, and a
source Ethernet address corresponding to the said second network device;
receiving the data packet at in a third network device; ~~said data packet, modifying~~
~~said~~
decrementing the hop count by one to form a modified data packet; ~~and~~
determining at least one port on the third network device by examining the said
destination Ethernet address ~~to identify one or more ports on said third network device to~~
~~forward information to said destination Ethernet address; and~~
forwarding the said modified data packet from the said third network device
through the at least one port ~~said ports~~.

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4-6. (Cancelled)

7. (Currently Amended) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method for detecting ~~a~~ the path to a first network device, the method comprising:

receiving a data packet ~~transmitting~~ from a second network device, the a data packet containing a hop count, a destination Ethernet address corresponding to the said first network device, and a source Ethernet address corresponding to the said second network device;

decrementing the ~~receiving in a third network device said data packet, modifying~~ said hop count by one to form a modified data packet; ~~and~~

determining at least one port on a network device receiving the data packet, by examining the said destination Ethernet address ~~to identify one or more ports on said third network device to forward information to said destination Ethernet address; and~~

forwarding the said modified data packet from the said ~~third~~ network device through the at least one port ~~said ports~~.

8. (Currently Amended) A method for detecting ~~a~~ the path to a first network device, said method comprising ~~the steps of~~:

- 1) initializing a hop count;
- 2) setting a first destination Ethernet address field to be equal to the Ethernet address of the said first network device;
- 3) setting a first source Ethernet address field to be equal to the Ethernet address of a second network device;

4) transmitting from the said second network device a data packet containing the said hop count, the said first destination Ethernet address, and the said first source Ethernet address to adjacent network devices;

5) receiving at the said second network device a reply data packet containing a second destination Ethernet address corresponding to the Ethernet address of the said second network device and a second source Ethernet address corresponding to the Ethernet address of one of the said adjacent network devices.

9. (Currently Amended) The method in accordance with ~~of~~ claim 8, wherein if the said second source Ethernet address in the said reply data packet is not equal to the said Ethernet address of the said first network device, the said hop count is modified and said transmitting and said receiving steps 4 and 5 are repeated.

10. (Currently Amended) The method in accordance with ~~according to~~ claim 1, wherein the said ~~first~~ network device is a LAN switch.

11. (Currently Amended) The method in accordance with ~~according to~~ claim 3, wherein the said first network device is a LAN switch.

12. (Currently Amended) The method in accordance with ~~according to~~ claim 3, wherein the said second network device is a LAN switch.

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13. (Currently Amended) The method in accordance with ~~according to~~ claim 3,
wherein the said third network device is a LAN switch.

C1
14-15. (Cancelled)

B3
16. (Currently Amended) The method in accordance with ~~according to~~ claim 8,
wherein the said first network device is a LAN switch.

17. (Currently Amended) The method in accordance with ~~according to~~ claim 8,
wherein the said second network device is a LAN switch.

18-21. (Cancelled)

22. (New) The method in accordance with claim 1, further comprising:
examining the hop count in the received data packet;
transmitting a reply data packet toward the source Ethernet address if the received
hop count is one.

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23. (New) The method in accordance with claim 22, wherein the replay data packet
includes:
a destination Ethernet address corresponding to the second network address; and
a source Ethernet address corresponding to the network device transmitting the
reply data packet.

24. (New) The method in accordance with claim 1, further comprising:

repeating said receiving, said decrementing, said determining, and said forwarding until the hop count in the data packet received at a network device becomes one.

25. (New) The method in accordance with claim 1, wherein said determining includes:

looking up an address table maintaining an association between Ethernet addresses and corresponding ports on the network device.

26. (New) The method in accordance with claim 1, wherein the modified data packet is forwarded through all of the ports on the network device if the destination Ethernet address is unknown.

27. (New) The method in accordance with claim 1, wherein the data packet is included in a data field of an Ethernet frame.

28. (New) A method for detecting the path to a desired network device, said method comprising:

setting a hop count at an initial value;

generating a probe data packet containing the hop count, a destination Ethernet address corresponding to the desired network device, and a source Ethernet address corresponding to a source network device sending the probe data packet;

transmitting the probe data packet;

receiving a reply data packet from a network device which received the probe data packet containing the hop count one, the reply data packet containing a reply destination Ethernet address corresponding to the source network device and a reply source Ethernet address corresponding to the network device sending the reply data packet;

determining if the reply source Ethernet address is the same as the destination Ethernet address of the desired network device;

incrementing the hop count by one if the replay source Ethernet address is different from the destination Ethernet address of the desired network device; and

repeating said generating, said transmitting, said receiving, said determining, and said incrementing, until receiving a reply data packet containing a reply source Ethernet address which is the same as the destination Ethernet address of the desired network device.

29. (New) The method in accordance with claim 28, wherein the initial value is one.

30. (New) The method in accordance with claim 28, wherein a network device receiving the probe data packet decrements the hop count by one before forwarding the probe data packet to another network device.

31. (New) The method in accordance with claim 28, further comprising:
storing information of the network device from which the replay data packet is received.

32. (New) An apparatus for detecting the path to a first network device, said apparatus comprising:

means for receiving a data packet from a second network device, the data packet containing a hop count, a destination Ethernet address corresponding to the first network device, and a source Ethernet address corresponding to the second network device;

means for decrementing the hop count by one to form a modified data packet;

means for determining at least one port on a network device receiving the data packet, by examining the destination Ethernet address; and

means for forwarding the modified data packet through the at least one port.

33. (New) The apparatus in accordance with claim 32, wherein the modified data packet is not forwarded if the destination Ethernet address is the same as the Ethernet address of the network device receiving the data packet.

34. (New) The apparatus in accordance with claim 32, further comprising:

means for examining the hop count in the received data packet;

means for transmitting a reply data packet toward the source Ethernet address if the received hop count is one.

35. (New) The apparatus in accordance with claim 34, wherein the replay data packet includes:

a destination Ethernet address corresponding to the second network address; and
a source Ethernet address corresponding to the network device transmitting the
reply data packet

36. (New) The apparatus in accordance with claim 32, further comprising:

means for repeating said receiving, said decrementing, said determining, and said
forwarding until the hop count in the data packet received at a network device becomes
one.

37. (New) The apparatus in accordance with claim 32, wherein said means for
determining includes:

means for looking up an address table maintaining an association between
Ethernet addresses and corresponding ports on the network device.

38. (New) The apparatus in accordance with claim 32, wherein the modified data packet
is forwarded through all of the ports on the network device if the destination Ethernet
address is unknown.

39. (New) The apparatus in accordance with claim 32, wherein the data packet is
~~included in a data field of an Ethernet frame~~

40. (New) An apparatus for detecting the path to a desired network device, said apparatus comprising:

means for setting a hop count at an initial value;

means for generating a probe data packet containing the hop count, a destination Ethernet address corresponding to the desired network device, and a source Ethernet address corresponding to a source network device sending the probe data packet;

means for transmitting the probe data packet;

means for receiving a reply data packet from a network device which received the probe data packet containing the hop count one, the reply data packet containing a reply destination Ethernet address corresponding to the source network device and a reply source Ethernet address corresponding to the network device sending the reply data packet;

means for determining if the reply source Ethernet address is the same as the destination Ethernet address of the desired network device;

means for incrementing the hop count by one if the replay source Ethernet address is different from the destination Ethernet address of the desired network device; and

means for repeating said generating, said transmitting, said receiving, said determining, and said incrementing, until receiving a reply data packet containing a reply source Ethernet address which is the same as the destination Ethernet address of the desired network device.

41. (New) The apparatus in accordance with claim 40, wherein the initial value is one.

42. (New) The apparatus in accordance with claim 40, wherein a network device receiving the probe data packet decrements the hop count by one before forwarding the probe data packet to another network device.

43. (New) The apparatus in accordance with claim 40, further comprising:
means for storing information of the network device from which the replay data packet is received.

44. (New) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method for detecting the path to a desired network device, said method comprising:

setting a hop count at an initial value;
generating a probe data packet containing the hop count, a destination Ethernet address corresponding to the desired network device, and a source Ethernet address corresponding to a source network device sending the probe data packet;
transmitting the probe data packet;
receiving a reply data packet from a network device which received the probe data packet containing the hop count one, the reply data packet containing a reply destination Ethernet address corresponding to the source network device and a reply source Ethernet address corresponding to the network device sending the reply data packet;

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determining if the reply source Ethernet address is the same as the destination Ethernet address of the desired network device;

incrementing the hop count by one if the replay source Ethernet address is different from the destination Ethernet address of the desired network device; and

repeating said generating, said transmitting, said receiving, said determining, and said incrementing, until receiving a reply data packet containing a reply source Ethernet address which is the same as the destination Ethernet address of the desired network device.
